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one to five in number, being nailed horizontally to them. In this case, the uncultivated or ungrazed margin is greatly reduced, but even this form of fence offers some protection to various species of insects. Any one who will observe the number of cocoons and eggs that are ensconced between the boards and posts, where these come in contact, will be astonished at their number, especially if his examinations be made during late autumn or winter.

The minimum protection is probably afforded by a fence constructed of posts and wire. The vegetation can be grazed off or otherwise removed, reducing the protection thus afforded to the least possible amount, and the wires offer no hiding-place where they are attached to the posts. It is this form of fence that is, to a very large extent, displacing all others except the stone-wall, especially throughout the area above mentioned, and this change materially reduces the protection before offered a considerable number of injurious insects. Of the species thus more or less fostered may be cited the chinch bug, *Blissus leucopterus* Say, which passes the winter protected by the thick covering of leaves and matted grass. The army worm, *Leucania unipuncta* Haw., often originates in such places in abundance. A large portion of the larvæ of the Stalk Borer, *Hydræcia nitela* Cuen, pass the early part of their larval stage in the stems of grass growing in such localities. Grasshoppers breed there in abundance. The Fall Web-worm, *Hypantria cunea* Drury, delights to pass its adolescent stage in the crevices about rail and board fences and stone-walls. If, as is often the case, the border of fields along the line of and in the corners of such fences, is allowed to grow up in a wilderness of blackberry and raspberry bushes, these will harbor the Root-borer, *Bembecea marginata* Harris, the Raspberry Saw-fly, *Selandria rubi* Harr., and the author of the Gouty gall of the raspberry, *Agrilus ruficollis* Fab. The Tarnished Plant-bug, *Lygus pratensis* Linn., will pass its winters in comfort among the leaves of mullein which adorn such places, and which constitute a veritable nursery for these and other injurious insects, from which they readily spread to adjoining gardens, orchards, and fields.

Soon after the adoption of barbed wire as a fence material, it was discovered that domestic animals were more or less liable to injury from the barbs. This led to a modification, to the extent of placing one board horizontally above the wires, and, while done especially for the protection of animals, it has an entomological and botanical signification which was wholly unlooked for, even by the entomologist or botanist.

The fall brood of the larvæ of *Spilosoma virginica* Fabr., familiarly known as the Common Yellow Bear, reaches maturity in September and early October, and appears to then acquire a somewhat nomadic habit of life, possibly being in search of a suitable place for cocooning. In their travels they seem to take advantage of fences and convert them into highways, over which they travel in great numbers. Now, with a fence of rails or boards, the travel is distributed over all of these, though the uppermost seems to be preferred. A barbed-wire fence is well-nigh impassable for these caterpillars, on account of the difficulty of crawling along the wires and over an occasional barb which stands in the way. The addition of the top board to a fence of barbed wire settles the transportation problem with these larvæ, and they crawl along these, upon the upper edge, in great numbers; but, as with mankind, disaster overtakes them in the midst of prosperity. This fall brood of larvæ seems especially liable to attack from a fungous disease, *Empusa auliceæ* Reich, as determined for me by Dr. Thaxter, of Harvard University. A caterpillar when affected by this *Empusa* becomes first paralyzed and limp, but later it is rigid and attached so tenaciously to the board that it only disappears by becoming disintegrated and washed off by rains. Now, when a caterpillar dies from this cause it usually becomes firmly affixed, right in the way of the migrating larvæ, so that one of these can scarce pass in either direction without rubbing against the corpse, as the way is only an inch in width. In thus coming in contact with the dead body of its fellow, in all probability some of the spores of *Empusa* become attached to its body and soon do their work, the dead as before lying in the narrow path and adding to the danger for other travellers. You can

readily see that in a short time the narrow way will become so filled with dead that to travel for any distance along this highway without contracting this fungoid disease is almost an impossibility. In proof of this, the upper edge of this board, where it is used, becomes literally strewn with corpses. In a distance of forty-eight feet I recently counted seventeen dead caterpillars, and clustered on the surface of the upper end of a post, comprising an area of two by six inches, six bodies were observed. As these caterpillars are not gregarious, and being general feeders, their chances of being reached by the spores of *Empusa* is comparatively small unless they rub against a diseased larva, or come within a certain radius of such a one when the spores are thrown off or "shot," as it is termed. Hence, as now appears, this mortality is largely due to the cause indicated, and which seems to be a powerful agent in holding the species in check.

It may be suggested that these larvæ might have been attacked before they made their way to the fences, as it is, I believe, a characteristic of *Empusa* that its hosts seek high objects, and crawl up as far as possible before dying. In my own observation, while this has proved true in the majority of cases, affected insects have been observed to travel about but little after reaching such elevation. Furthermore, these caterpillars have been observed in abundance crawling along fences when *Empusa* did not appear to be present.

WATCHING A SNAKE FOR AN HOUR.

BY WALDO DENNIS.

ONE bright morning in July I was walking in the woods, when a snake crossed my path only a few feet in front of me. It was about two feet long, and its dark blotches made it resemble a water snake. It had not been disturbed by my presence, as it moved very slowly, and this slow movement led me to watch it.

It scarcely crossed the path before it began to ascend a medium-sized dogwood tree (*Cornus Florida*). This to me was a coveted opportunity. The story of an eye-witness as to how a blacksnake had climbed the naked corner of a house to a height of ten feet had left me curious to see something of the kind myself.

The dogwood tree, near the ground, was about seven inches in diameter, and was a rather smooth-barked one. The tree leaned but slightly for about ten feet of its height, but then it curved sharply to a horizontal, making the highest part of the body about fifteen feet from the ground. The snake started up on the under side of the slant, and apparently found no more trouble going up the tree than it had in going over the ground. It made no effort to wind itself around the tree nor to hug the tree by winding back and forth, as the blacksnake had been reported to do on the corner of the house. It went straight up without crook or turn.

After ascending about three feet, it seemed to feel its hold weaken, and threw its body into folds. But this was only for a few inches of its course, and it found no occasion to repeat even this expedient. The very acute angles of two or three of the folds, however, showed how well this could be done when necessary. When such a protuberance as a knot came in its way, it seemed to care very little for its advantage, and left it to one side.

After getting up four or five feet, it stopped; being anxious that it should go on up, and fearing it would come down, I touched it with a stick, whereupon it moved faster, gliding quickly out of my reach, showing thus that it had been going so slowly from choice, and not from any difficulty in going faster. When it was about eight feet high it stopped again, which made me have recourse to a larger stick. When it had reached the highest point from the ground, I shook the tree, as well as one could a tree of such size, to see if it could keep its hold. This it did, only lifting up its head and poking it out from the tree, where it lay, four or five inches, as if to see what was the matter. It occurred to me to wonder how it would manage its descent, so I left off experimenting in this line and retired to watch.

I had to wait but a few minutes before the snake began to turn round by doubling on itself. But after crawling along toward

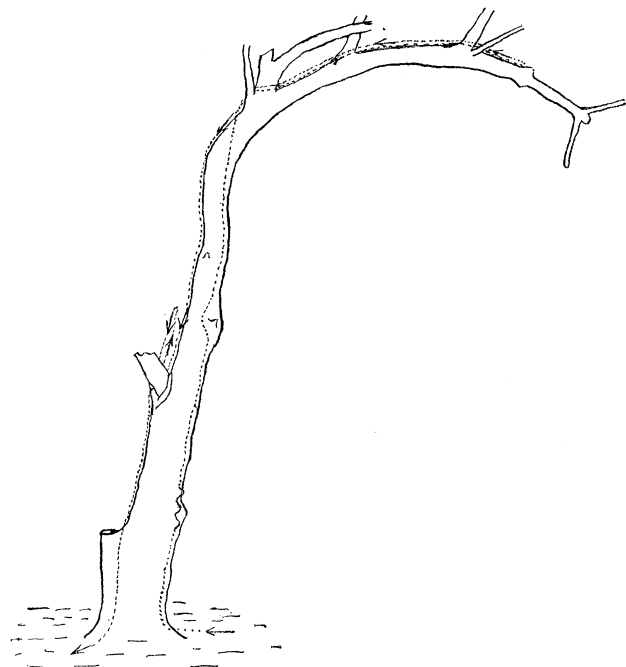
the base of the tree for a foot, it contented itself with basking in the sun.

While lying thus, it lifted up its head four or five inches and gaped. Its mouth opened very wide; but while closing, the nervous spasm, only half expended, again seized upon its jaws, whereupon they went wider than before; the spasm exhausting itself at last in a parting wriggle or two to the head.

So natural was this novel performance, that I involuntarily listened for that characteristic accompaniment, the little agonizing whine so common with the dog, and not uncommon with us.

After a sun-bath of nearly half an hour, the snake began slowly to descend. His course was as straight coming down as it had been going up; but, now being on the top of the trunk, he naturally kept to the outside of the bend. His progress was interrupted with frequent pauses, and at times it was so slow that I could scarcely detect any movement.

When it reached a fork of the tree, about ten feet from the ground, a titmouse came along. It soon discovered the snake and became much excited. Its scolding soon brought its mate, when each one, emboldened by the presence of the other, tried to see how much nearer it could go. They hopped all round the snake, now three feet and now scarcely so many inches from it. Had the snake been hunting birds, it would now have needed but



little dexterity to catch one. But the snake paid no attention to them; and after fluttering foolishly near for a time, they paid no further attention to it, flew off, and did not return.

When within about five feet of the ground, the snake paused beside the dead stub of a limb. Swinging its head round toward the stub, it held it there as if intently regarding something it had found. Suddenly its head began slowly to disappear in a hole which I had not noticed. When its head was out of sight, I stepped quite near. It kept gradually forcing its way into the snag until six or eight inches of it had disappeared. All the while it was going in, its body was shrinking and swelling as if it were panting. Evidently it was cautiously smelling its way into what afterwards proved to be a mouse-nest. Possibly it had feasted before on tender, juicy, young mice, and was now promising itself a repetition of such luxuries. When one reflects that stumps, logs, fence-rows, rail-piles, and the like are at the same time the haunts of snakes and the nesting-places of ground-mice and squirrels, he cannot but conjecture how often the helpless young of the latter must fall a prey to snakes. Also, it may be questioned whether the economic value of snakes is not underestimated.

Not finding his game in this instance, however, his highness stiffened himself and withdrew. But, as if loath to give up the treat he had promised himself, he lingered quite a while at the

spot, and busied himself in a way which probably accounted for his moving so slowly before, but which from my distance had been unnoticed. He seemed to be using his tongue as a tactile organ on the bark, playing it back and forth from his mouth like a little brush, running it way out, or dropping it down close to his chin, according to the nearness of the piece of bark under inspection. It finally turned up the tree again, carefully sampling the bark as it went. It seemed in quest of something, but what could it find with its tongue? when so evidently, to the eye, there was nothing for a snake to eat. After going but a little ways, he again turned down. But all the way, from here down, it kept up that use of its tongue on the bark. When it reached the ground, it glided off as slowly as before. I now stood by quietly, but did not conceal myself.

The snake had seemed to me to be about two-thirds grown. His not recognizing me as an enemy also showed that he was a young snake, and had not yet learned to be wary of his neighbor's Christian heel. It continued to pause now and then as before, and, as before, I could see its thread-like tongue playing back and forth, licking the way along. But, what was my surprise, at about ten feet from the tree it came down, to see it start up another, this time a jack-oak, about fifteen inches in diameter. The bark in this case was rougher and the climbing must have been easier, but it went up just as slowly as before, and, to the height of three feet at least, its course was just as straight. When so high, I was suddenly struck with the resemblance of the gray blotches of the snake to the gray blotches of bark by which it was surrounded. So much alike were they, that at no greater distance than fifteen feet it was difficult to distinguish certain portions of its body from the bark. To consider this a case of mimicry would strain credulity. The habit of tree-climbing in that case would be common with snakes, and could not go unobserved. That such a practice is commonly observed, certainly is not true. Yet this resemblance, accompanied as it was by such voluntary tree-climbing, if accidental, is, to say the least, remarkable. For certainly we have here a young snake, not more than two-thirds grown. Could this tree-climbing be the exceptional trick of a young snake? Not likely. Any such performance which a young snake takes to so naturally, it must have begun to learn farther back than its grandmother.

However this may be, however probable it is that snakes are decreed to go on their bellies on the ground, I shall, I suppose, hereafter be looking for snakes in trees; and, on meeting one, shall give him every encouragement to show forth a tree-climbing instinct.

I should say that at this juncture I lost the snake, and so was unable to identify him. A flock of cattle browsing in the wood came upon us. While watching to see how near these would come before noticing me, the snake slipped unobserved away.

CURRENT NOTES ON ANTHROPOLOGY.—XX.

[Edited by D. G. Brinton, M.D., LL.D.]

Nervous Disease in Low Races and Stages of Culture.

AMONG the errors which have been diligently disseminated by physicians who lacked ethnological information is that which claims that diseases of the nervous system, especially those of a hysterical character, have greatly increased with the development of civilization, and are most common in the races of highest culture.

Both assertions are erroneous. Those intelligent travellers who give the soundest information on this subject report that in uncultivated nations violent and epidemic nervous seizures are very common. Castren describes them among the Siberic tribes. An unexpected blow on the outside of a tent will throw its occupants into spasms. The early Jesuit missionaries paint extraordinary pictures of epidemic nervous maladies among the Iroquois and Hurons. The Middle Ages witnessed scenes of this kind, impossible to-day.

In a late number of the *Journal de Medicine*, Paris, Dr. De la Tourette points out the frequency of true hysteria and hysteroid seizures in the Black race, among the Hottentots and the Caffirs of East Africa, and among the natives of Abyssinia and Mada-